

European experiences in designing policies for renewable energy: Where do we stand today?

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Workshop What are the policy options for an accelerated deployment of renewable energies in EU-MENA region?

Main policy development on EU level

EU Renewable Energy Directive 2009/28/EC

- New Directive was passed in December 2008
- Targets for 2020:
 - 20% renewable energy in final energy consumption
 - Binding targets for Member States
- National support schemes remain the cornerstones for the deployment of renewables in Europe
- Cooperation mechanisms between Member States
 - Statistical transfer, Joint projects, Joint support schemes
 - Physical imports from third countries
- Measures to reduce non-economic barriers (particularly reduce administrative, regulative, grid related barriers)
- National Renewable Energy Action Plans show planned overachievement of targets and MS progress reports currently under evaluation

Current achievements are substantial

The last decade was characterized by the successful deployment of renewable energy sources (RES) across EU member states – total RES deployment increased by more than 40%. In detail:

- RES electricity generation grew by approximately 40%, RES heat supply by 30% and biofuels by a factor of 27 during the last decade,
- new renewables in the electricity sector (all technologies except hydropower) increased fivefold during the same period,
- total investment amounts to € 40 billion annually in 2009,
- employment due to RES amounts to about 1.5 Mio. people in 2010
- cost reductions for key technologies like wind and PV are in line with learning curve expectations
- Europe acted as first mover to start global RES development

The challenge

But more is needed to reach the 2020 targets: Compared to the last decade,

- growth in RES-E needs to almost double from 3.4% per year to 6.7% per year,
- growth in RES-H sector needs to increase from 2.7% per year to 3.9% per year until 2020,
- compared to the last three years relative growth rates need to roughly continue during the next decade,
- credit crisis reduces growth in a number of MS
- costs of RES policies have reached 0.3% of EU GDP

Evaluation of NREAPs shows that largest deficits exist regarding the mitigation of non-economic and grid-related barriers and regarding support schemes for RES-H

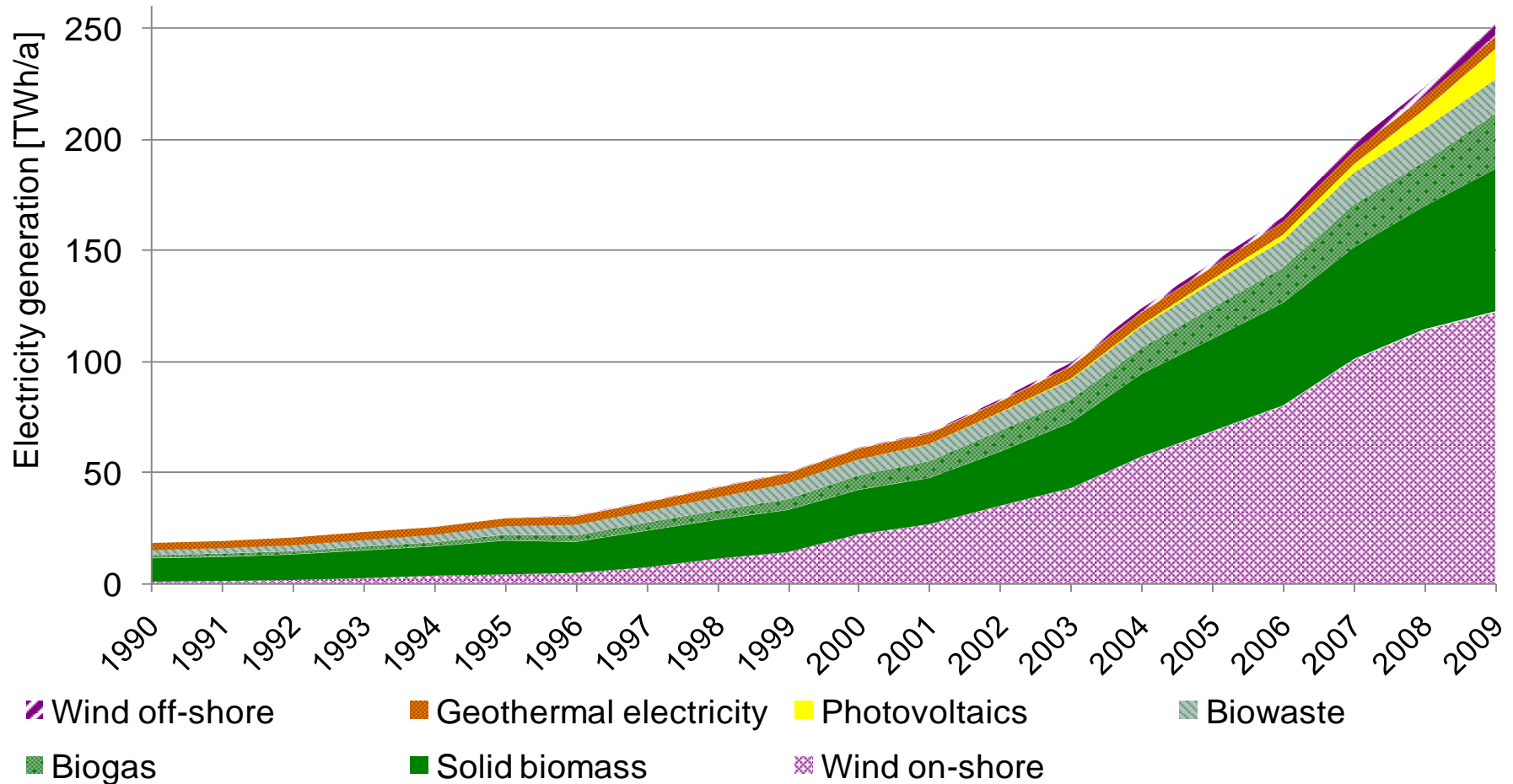
The challenge

Areas, where action is needed:

- Accelerate deployment by stronger and EU-wide coordinated mitigation of non-economic barriers
- Increase the effectiveness and efficiency of support by improved instrument design in case of RES-E and by introducing new off-budget instruments for RES-H
- Increase the compatibility between RES-E and power markets by increasing flexibility of power markets and of RES-E support schemes
- Coordinate support scheme design, market design, administrative procedures and intensify use of cooperation mechanisms

Historical development of new RES-E in the EU-27

► “New Renewables” in the EU-27

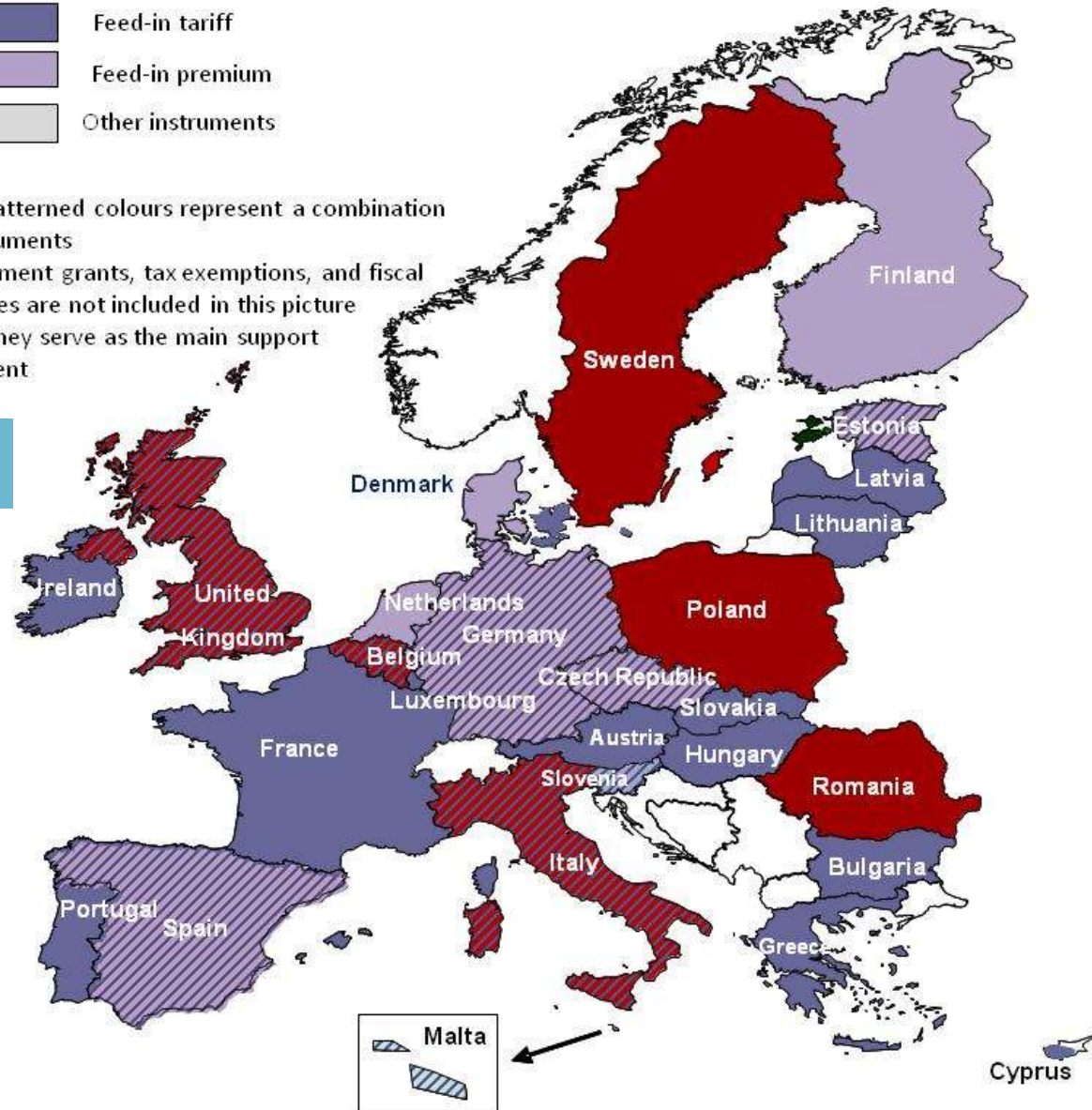


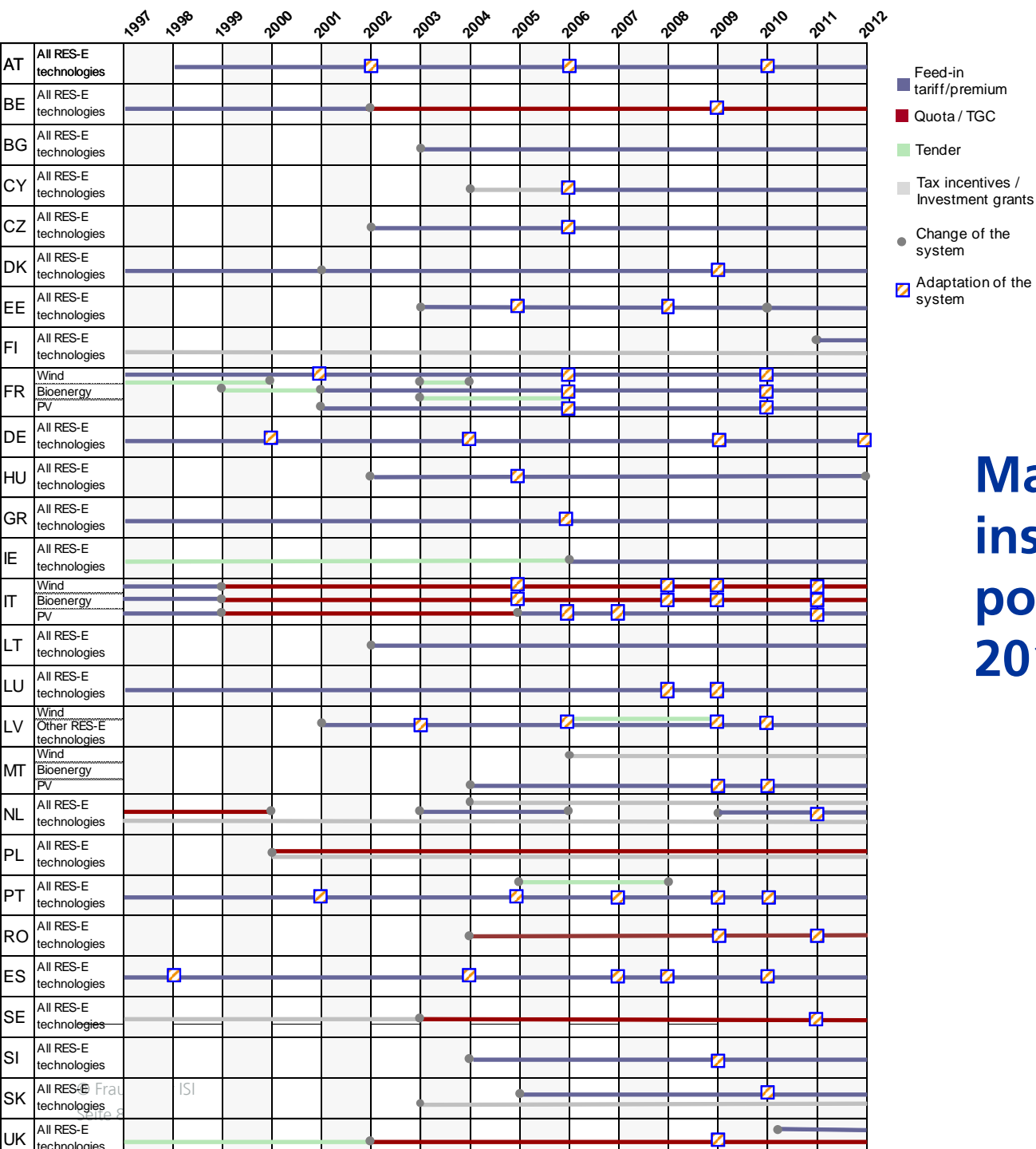


Notes:

- 1) The patterned colours represent a combination of instruments
- 2) Investment grants, tax exemptions, and fiscal incentives are not included in this picture unless they serve as the main support instrument

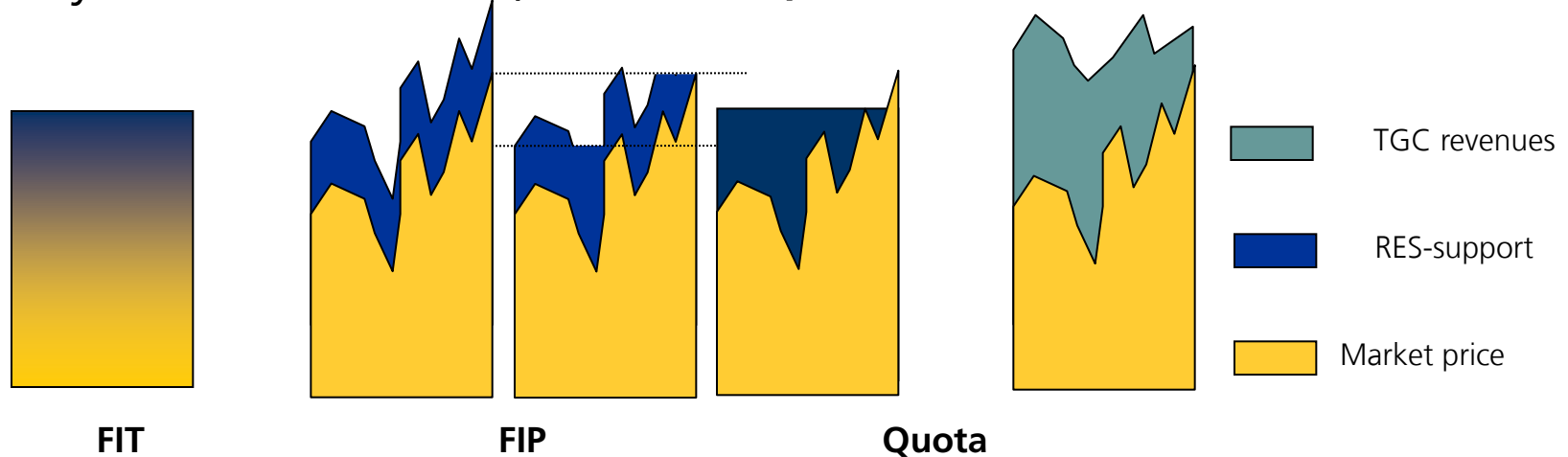
Source:
RE-SHAPING 2011





Main support instrument RES-E & policy changes 1997-2012

Key features FIT, FIP & Quota



fixed premium - cap & floor - sliding/Cfd

Fixed feed-in tariff (FIT)

Gov fixes price, market decides quantity

- Fixed tariff (€/MWh)
- Guaranteed during lifetime or x years
- Purchase obligation
- (Grid (access & use) priority)

Feed-in premium (FIP)

- Fixed premium (€/MWh)
- Guaranteed during lifetime or x years
- Power sold on conventional markets

Quota

Gov fixes quantity, market decides price

- Obligation for suppliers:
 - Minimum RES-E share
 - Increasing over time
 - Penalty
- Tradable certificates for RES-E production ('market' price)
- Obligation is met by submission of certificates to competent authority
- Power sold on conventional markets

Performance of RES-E support schemes regarding effectiveness and efficiency

Measuring the effectiveness of RES-E support

1. **Relative or absolute growth rates** are typically used to demonstrate the achievements of countries, however both measures are biased
2. Better measure to judge the performance is the **absolute growth as ratio of the additional potential**

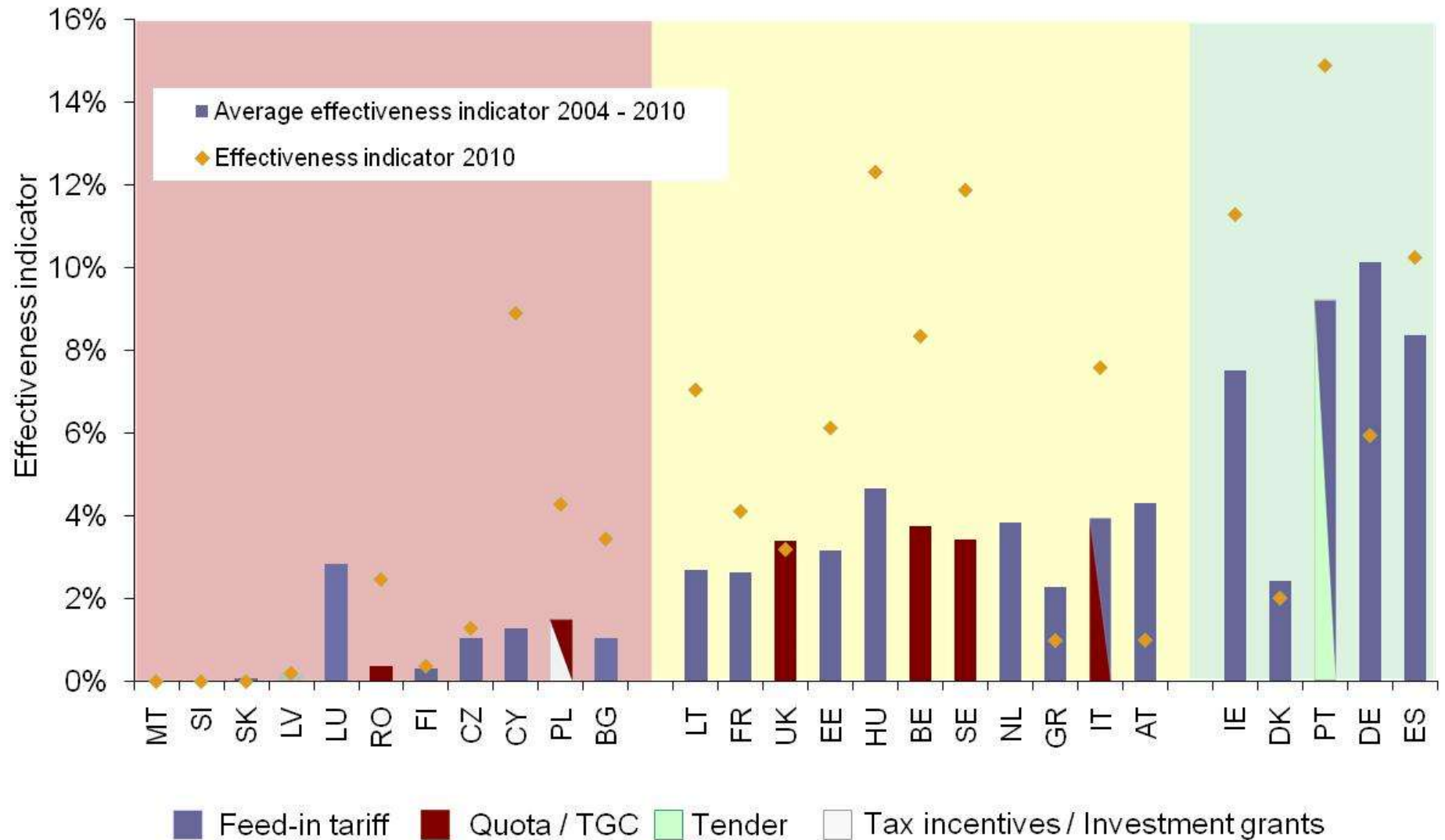
$$E_n^i = \frac{G_n^i - G_{n-1}^i}{ADD - POT_n^i}$$

E_n^i Effectiveness indicator for RES technology i for the year n

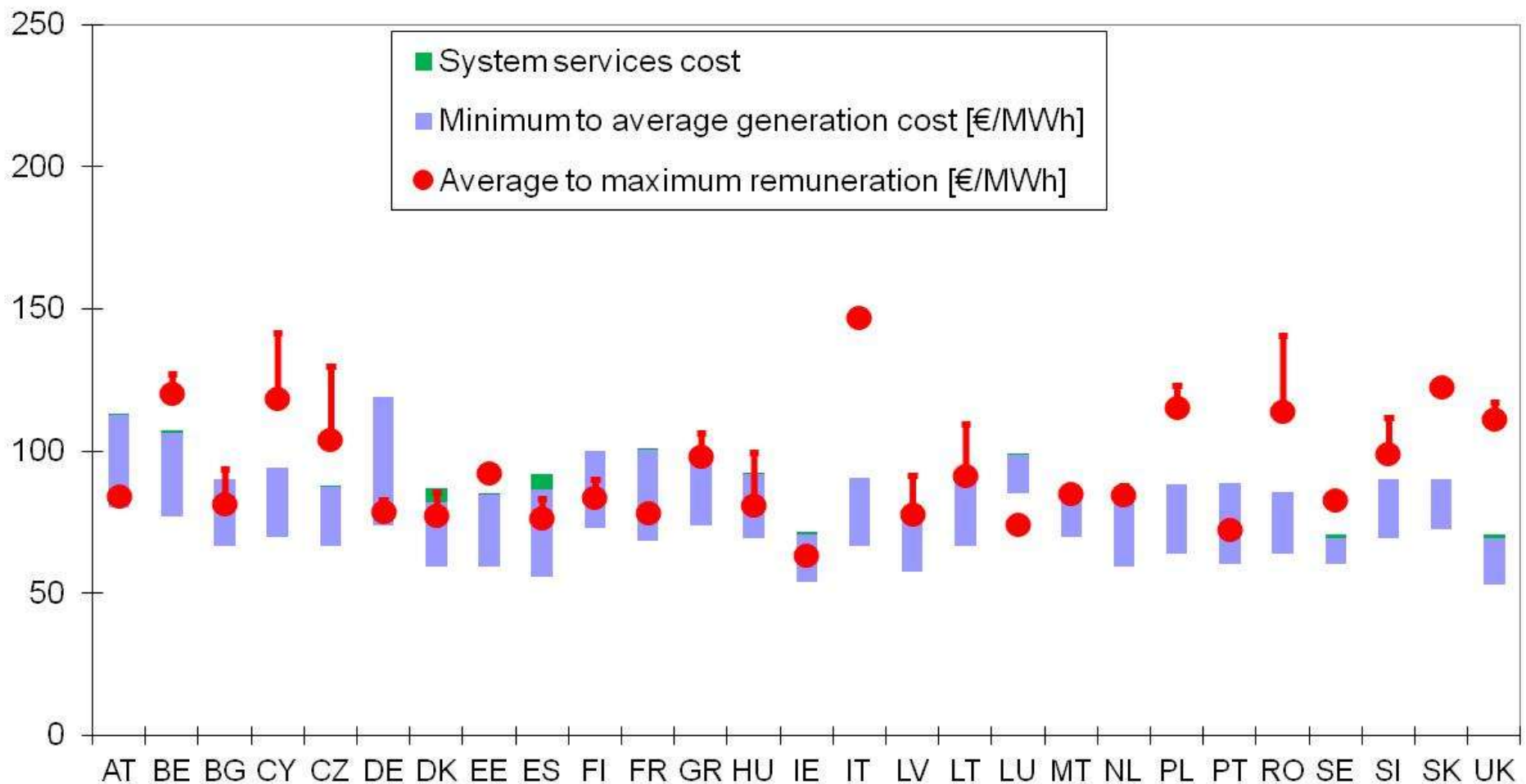
G_n^i Existing electricity generation potential by RES technology i in year n

$ADD - POT_n^i$ Additional generation potential of RES technology i in year n until 2020

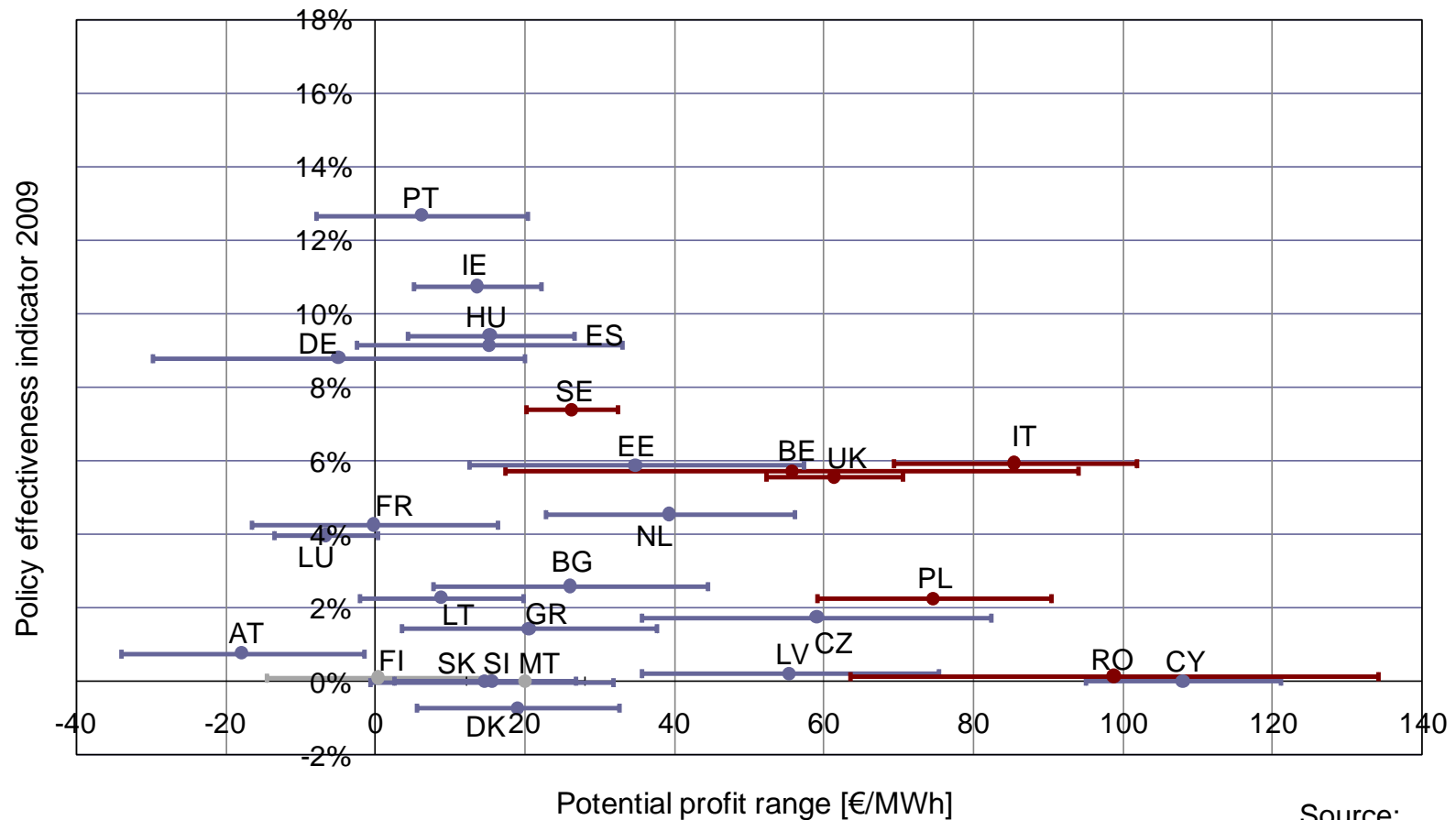
Policy effectiveness - wind onshore



Support level ranges - wind onshore



Profit ranges vs. effectiveness - wind onshore (cost-effectiveness of policies in EU-27)



Source:
RE-SHAPING 2010

Conclusions – Electricity sector

1. Provide policy stability (for FIT / FIP / Quota):

- ➔ Retroactive policy changes are most crucial mistake but also other sudden changes should be avoided.
- ➔ Move away from annual budget planning with stop and go consequences

2. Reduce (unproductive) revenue risks:

- ➔ Long term contracts are most relevant (quota systems)
- ➔ Priority dispatch in case of grid congestion & compensation for forced curtailment

3. Take stronger efforts in FIT / FIP schemes to assure that learning curve achievements are translated into price reductions

- ➔ Strict use of automatic degression formulas
- ➔ implement competitive elements

Conclusions on coordination and cooperation

- ➔ Establish process to coordinate the mitigation of non-economic barriers regarding administrative procedures, permitting, grid connection
 - ➔ common guidelines for permit requirements and procedures
 - ➔ maximum / targeted lead times for projects
 - ➔ common guidelines for technical requirements for grid connection
- ➔ Establish process to assist price determination for cooperation mechanisms
 - ➔ Average support level for new RES in the EU may be a suitable approximation for price level
 - ➔ EC may calculate average support level on an annual basis and publish it on the transparency platform
- ➔ Create platform for stronger cooperation for large scale projects, which cannot be carried out by individual Member States alone, e.g. wind off-shore
- ➔ Keep the space for national policy innovation, competition of ideas for best practice policy development as this was one of the key success factors in EU RES policy

Thank you for your attention!

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